



October 20, 2003

Mr. Nabil S. Fayoumi
U. S. Environmental Protection Agency - Region 5
Superfund Division
77 West Jackson Boulevard (SR-6J)
Chicago, Illinois 60604-3590

**Re: Slurry Wall Changes
Slurry Wall Excavation, Sauget Area 2, Sauget, Illinois**

Dear Mr. Fayoumi:

This letter is to document the changed conditions that have resulted in minor changes made to the remedial actions at the site. These actions were taken as necessary to assure the safety of personnel and equipment, to protect stability of the slurry wall and to meet the performance requirements specified in the approved Final Design. Each of these actions was necessary either to accomplish the work or to address Agency concerns raised subsequent to submittal of the Final Design.

Soil Stabilization

Inquip proposed construction utilizing a one-foot thick stone-filled work pad aligned parallel to the trench to support the two clamshell cranes. However, when the track hoe began excavation, the ground surface south of Station 16+00 was observed to compress several inches under the weight of the excavator. Test pits excavated along the barrier wall alignment revealed soft saturated soils containing fly ash mixed with fine sand. It was apparent that some stabilization would be required to assure safety of the excavation personnel and equipment. It was unknown at that time if trench stability was an issue.

Through an iterative design process, Inquip, Solutia, Mueser Rutledge and URS engineers developed a solution to stabilize the equipment and the trench. The design analysis was presented to EPA in a technical memorandum dated October 16, 2003. The design includes an ~2.5-foot thick work platform, higher slurry level and wick drains.

Ranney Well

The existence of the Ranney well was known, but the exact location and design of which were not determined until after the Final Design was submitted. It was determined that the laterals from the well may cross the slurry wall alignment. Although drawings on file indicated that all valves had been closed and the well had been abandoned and filled with gravel, there was no way to be certain that slurry would not be lost through the well when the lateral was cut. To assure that a catastrophic volume of slurry would not be lost into the Ranney Well, it was decided to grout the well. The well was grouted by Strata Services during the week of September 22, 2003. A total of 2,916 cubic feet of grout was injected into the bottom of the collector well (i.e., a large diameter section of well to which the laterals connected.). Approximately 1,600 to 1,800 cubic feet of grout apparently flowed into open laterals before the collector well was filled with ~20 feet of grout. The Grouting Report from Strata Services was submitted as part of the September 2003 UAO Monthly Report dated October 10, 2003.

Spoils Volume

When the ESD was issued, the volume of spoils from the slurry wall was estimated to be less than 5,000 cubic yards. Subsequently, several issues have developed that will increase the spoils volume.

- Testing has confirmed that 1×10^{-7} cannot be achieved with site soils. Therefore, either dry bentonite or imported clay must be added to the backfill to lower permeability.
- Soils excavated in the soft soils/fly ash area cannot be used for backfill and must be placed in the spoils area.
- Boulders cannot be used for backfill and must be placed in the spoils area.
- Landfilled materials excavated from the south leg of the slurry wall alignment cannot be used for backfill and must be placed in the spoils area.

A technical memo estimating the spoils volume will be submitted within the next week. Two wells are located within the soils stockpile area. Leach-R-1 has been abandoned in accordance with State of Illinois requirements and B-30B may be abandoned in the future.

Slurry Wall Realignment

The original alignment of the slurry wall is too close the support tower for the high voltage power lines at the southeast end of the slurry wall (near station 5+00). The tower support foundations below ground are larger than anticipated and the wall must be moved further south to prevent any potential stability issues for either the tower or the slurry wall. This revised alignment also provides additional space for the clamshell cranes and allows them to work on the inside of the trench. See Figure 1, attached, for the revised alignment. The revised trench alignment will necessitate abandonment of DNAPL well Sonic 5.

Box Culvert

An existing box culvert, owned by the Village of Sauget, will penetrate the slurry wall. It was always Solutia's intent to dig around it and leave it in place. The box culvert is shown on the drawings in the Final Design Submittal on Sheet Nos. 2-03, 2-04, 2-05 and 2-06 approved by the Agency. It was also shown on these drawings in the January 17, 2003 Pre-Final Design Submittal. EPA/IEPA recently expressed concern about the penetration of the slurry wall. Solutia has been asked to submit a technical memorandum describing the options to prevent any potential leakage of groundwater into the box culvert from reaching the river, which will be sent within the next week.

If you have any questions, please call me.

Sincerely,
Solutia Inc.

Gary W. Vandiver
Project Coordinator

cc. Sandra Bron - IEPA
Linda Tape - Husch & Eppenberger
Mike Coffey - USF&W
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